



Selected Definitions of Green Industries and Green Jobs

Author and Organization	Definitions of "Green Industries" and "Green Jobs"	NAICS codes list	SOC code list	Link to Source
STATE OR FEDERAL GOVERNMENT DEFINITIONS				
California Employment Development Department	<p>Green or clean is any activity or service that performs at least one of the following:</p> <ul style="list-style-type: none"> • Generating renewable energy • Recycling existing materials • Energy efficient product manufacturing, construction, installation, and maintenance • Education, compliance and awareness • Natural and sustainable product manufacturing <p>Generating and storing renewable energy -- Includes alternative energy generated by, but not limited to:</p> <ul style="list-style-type: none"> • Wind • Solar • Water • Biofuels • Biomass • Hydrogen fuel cells <p>Recycling existing materials - Corporations involved in the collection and processing of recyclable materials, including those running a recycling or wastewater plant. Includes environmental clean-up and remediation (does not include companies that recycle paper, glass, and cans in a bin.).</p> <p>Energy efficient product manufacturing, distribution, construction, installation, and maintenance -- This includes companies involved in the research, development, and manufacturing of products such as solar panels, energy efficient light bulbs, and vehicles. It also includes construction companies that install and repair these products in new or existing residential or commercial real estate, as well as real estate planning and land development.</p> <p>Education, compliance, and awareness -- This sector includes:</p> <ul style="list-style-type: none"> • Training providers for curricula such as solar panel installation, energy auditing, sustainability management, and environmental careers. • Environmental consulting • Governmental/legislative compliance • Conservation and wildlife programs • Trading and offsets • Social assistance <p>Natural and sustainable product manufacturing -- Includes companies that create products using natural materials. Also includes businesses that produce safe, nontoxic products; bamboo products; products out of previously-recycled materials, and agricultural firms that practice sustainable farming.</p>	Y	Y	http://www.labormarketinfo.edd.ca.gov/contentpub/GreenDigest/Californias-Draft-Definition-Green-Industries.pdf
Colorado (study by The American Solar Energy Society and Management Information Services, Inc.)	<ul style="list-style-type: none"> • A job in the Renewable Energy (RE) industry consists of an employee working in one of the major RE technologies included in this study – wind, photovoltaics, solar thermal, hydroelectric power, geothermal, biomass (ethanol, biodiesel, and biomass power), and fuel cells and hydrogen. In addition, in this study, jobs in RE include persons involved in RE activities in the federal, state, and local governments, universities, trade and professional associations, NGOs, consultants, investment company analysts, etc. • A job in the Energy Efficiency (EE) industry consists of an employee working in a sector that is entirely part of the EE industry, such as an ESCO or the recycling, reuse, and remanufacturing sector. It also includes some employees in industries in which only a portion of the output is classified as within the EE sector, such as household appliances, HVAC systems, construction, etc. Finally, in this study, jobs in EE include persons involved in EE activities in the federal, state, and local governments, universities, trade and professional associations, NGOs, consultants, investment company analysts, etc. 	N	Y	http://www.colorado.gov/energy/in/uploaded_pdf/GreenJobsReportFull.pdf

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<p>Connecticut Department of Labor</p> <p>Governor's Steering Committee on Climate Change's <i>Climate Change Action Plan 2005</i></p>	<p>Green occupations – any occupation whose SOC definition indicated that the occupation in question contributes directly to preserving and enhancing the quality of the environment.</p> <p>Green industries – any NAICS industry defined as producing a product or service that contributed directly to preserving and enhancing the quality of the environment.</p> <p>Address climate change by reducing GHG emissions through action in:</p> <ul style="list-style-type: none"> • Transportation and land use • Residential, commercial and industrial • Agriculture, forestry and waste • Electricity generation • Education and outreach. 	Y	Y	<p>http://www.ctdol.state.ct.us/lmi/misc/ceddec08.pdf</p> <p>http://ctclimatechange.com/documents/ExecutiveSummary_CCC_AP_2005_000.pdf</p>
<p>District of Columbia DC Office of Planning (study by Louis Berger Group)</p>	<p>Green jobs are career-track employment opportunities in emerging environmental industries as well as conventional businesses and trades, created by a shift to more sustainable practices, materials, and performance. The definition includes both lower and higher skilled employment opportunities that minimize the carbon footprint of all necessary inputs and directly result in the:</p> <ul style="list-style-type: none"> • Restoration of the environment • Generation of clean energy and improved energy efficiency • Creation of high performing buildings, and • Conservation of natural resources. 	Y	Y	<p>http://planning.dc.gov/planning/frames.asp?doc=/planning/lib/planning/green_collar_jobs/dc_green_jobs_final_report.pdf</p>
<p>Florida Legislature FL HB 7135 CHAPTER 2008-227</p>	<p>"Alternative and renewable energy" means electrical, mechanical, or thermal energy produced from a method that uses one or more of the following fuels or energy sources: ethanol, cellulosic ethanol, biobutanol, biodiesel, biomass, biogas, hydrogen fuel cells, ocean energy, hydrogen, solar, hydro, wind, or geothermal.</p> <p>"Biomass" means a power source that is comprised of, but not limited to, combustible residues or gases from forest products manufacturing, waste, byproducts, or products from agricultural and orchard crops, waste or co-products from livestock and poultry operations, waste or byproducts from and food processing, urban wood waste, municipal solid waste, municipal liquid waste treatment operations, and landfill gas.</p>	N	N	<p>http://laws.flrules.org/files/Ch_20_08-227.pdf</p>
<p>Illinois Chicagoland Green Collar Jobs Initiative</p>	<p>Green survey but no definition listed</p> <p>Some of the prevalent green collar jobs include: energy raters for homes and commercial buildings; green cleaning and building maintenance staff; alternative energy service providers (solar, wind, geo-thermal); installer/maintenance of stormwater management systems (green roof, permeable pavement, rain water collection); urban agriculture (landscaping, farming, apiculture) and green-related services (recycling, retail, manufacturing). Conducted research identified four green collar job sectors:</p> <ul style="list-style-type: none"> • Urban Agriculture and Horticulture • Building Construction, Operations & Maintenance • Green Products and Services • Energy Efficiency & Alternative Energy 	N	N	<p>http://www.greencollarchicago.org/index.php?section=partners</p>
<p>Michigan Department of Energy, Labor and Economic Growth</p>	<p>The <i>green economy</i> is comprised of businesses that offer products or services related to renewable energy, increased energy efficiency, clean transportation and fuels, agriculture and natural resource conservation, and pollution prevention or environmental cleanup.</p> <p><i>Green jobs</i> include primary occupations engaged in the production of green-related products or services, and support jobs created by green-related revenue.</p> <p>POTENTIAL CORE GREEN-RELATED ACTIVITIES:</p> <ul style="list-style-type: none"> • Producing renewable energy, renewable energy parts and equipment, or supplying related products or services, conducting research and development or providing consulting assistance (solar, wind, hydro, geothermal heat, biomass). • Increasing energy efficiency (insulation, retrofitting, green building design, energy demand reduction, production of energy efficient household appliances, engineering, consulting or research services) • Clean transportation and fuels (advanced batteries, fuel cells, electric and hybrid vehicles, alternative fuels, public transit, activities related to meeting fuel efficiency standards). • Agriculture and natural resource conservation (no till conservation tillage, organic farming, community supported agriculture, methane capture in animal and/or food waste management, planting trees or grasses, forest and land management, water conservation, environmental consulting services, 	Y	Y	<p>http://www.labormarketinfo.edd.ca.gov/article.asp?articleid=1241</p>

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<i>Michigan, continued</i>	<p>environment, conservation, and wildlife organizations).</p> <ul style="list-style-type: none"> • Pollution prevention and environmental cleanup (controlling industrial and commercial emissions, water treatment, recycling center operation, waste treatment, environmental remediation, brownfield redevelopment, hazardous waste cleanup, wetlands restoration). 			
<p>Minnesota</p> <p>Governor's Green Jobs task Force (definition)</p> <p>Minnesota Department of Employment and Economic Development (green survey)</p>	<p>Green jobs are the employment and entrepreneurial opportunities that are part of the green economy, as defined in Minnesota statute 116.437J1, including the four industry sectors of green products, renewable energy, green services and environmental conservation. Minnesota's green jobs policies, strategies and investments need to lead to high quality jobs with good wages and benefits, meeting current wage and labor laws.</p> <p>Green Products are industries related to the manufacture of products that reduce environmental impact and improve use of resources such as energy efficiency, water conservation and use of environmentally preferred materials; used in one of the following four areas:</p> <ul style="list-style-type: none"> • Building • Transport • Consumer Products • Industrial Products <p>Renewable Energy includes industries related to the production of energy from natural resources such as solar, wind, hydropower, geothermal, biomass and biofuels such as ethanol, cellulosic ethanol and biodiesel, recovering and using waste heat, utilizing biomass (animal waste, crop waste etc) for energy including cogeneration.</p> <p>Green Services are industries and occupations that are providing a range of services that help business and individual consumers use green products and technologies, and are building energy infrastructure and occupations related to energy efficiency, farming, and recycling and waste management</p> <p>Environmental Conservation includes industries related to conservation of energy, air, water and land including air emissions control, monitoring and compliance, water treatment, water conservation, wastewater treatment, land management (including prairie), natural pesticides, aqua culture, local/ organic farms.</p> <p>Green Economy is defined in Minnesota Statute Section 116J.437 as follows: "[G]reen economy" means products, processes, methods, technologies, or services intended to do one or more of the following: (1) increase the use of energy from renewable sources, including through achieving the renewable energy standard established in section 216B.1691; (2) achieve the statewide energy-savings goal established in section 216B.2401, including energy savings achieved by the conservation investment program under section 216B.241; (3) achieve the greenhouse gas emission reduction goals of section 216H.02, subdivision 1, including through reduction of greenhouse gas emissions, as defined in section 216H.01, subdivision 2, or mitigation of the greenhouse gas emissions through, but not limited to, carbon capture, storage, or sequestration; (4) monitor, protect, restore, and preserve the quality of surface waters, including actions to further the purposes of the Clean Water Legacy Act as provided in section 114D.10, subdivision 1; or (5) expand the use of biofuels, including by expanding the feasibility or reducing the cost of producing biofuels or the types of equipment, machinery, and vehicles that can use biofuels, including activities to achieve the biofuels 25 by 2025 initiative in sections 41A.10, subdivision 2, and 41A.11. For the purpose of clause (3), "green economy" includes strategies that reduce carbon emissions, such as utilizing existing buildings and other infrastructure, and utilizing mass transit or otherwise reducing commuting for employees.</p>	Y	Y	<p>http://www.mngreenjobs.com/</p> <p>http://www.mngreenjobs.com/site/default/files/downloads/Task%20Force%20Green%20Jobs%20Definition%20on%20letterhead_0.pdf</p>

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New York Lieutenant Governor's Renewable Energy Task Force	<p><i>Renewable Fuels</i>: focusing on corn-based and cellulosic ethanol, biodiesel, butanol, liquefied biogas, hydrogen, and electric-based transportation;</p> <p><i>Energy Efficiency</i>: focusing on electric, natural gas and oil efficiency (vehicle as well as building);</p> <p><i>Renewable Electricity Central Generation</i>: addressing generation facilities selling into the wholesale electricity market, with specific focus on wind, sustainably produced biomass, hydropower, and tidal power; and,</p> <p><i>Renewable Electricity Distributed Generation</i>: focusing on “customer-side” applications of solar photovoltaic (PV), solar thermal, sustainable biomass, anaerobic digesters, geothermal, small wind, small hydro (including kinetic power), and fuel cells.</p>	N	N	http://www.ny.gov/governor/press/lt_RETf_Report.pdf
Oregon Employment Department Workforce and Economic Research	<p>A green job is one that provides a service or produces a product in any of the following categories:</p> <ul style="list-style-type: none"> • Increasing energy efficiency • Producing renewable energy • Preventing, reducing, or mitigating environmental degradation • Cleaning up and restoring the natural environment • Providing education, consulting, policy promotion, accreditation, trading and offsets, or similar services supporting categories 1-4. 	Y	N	http://www.qualityinfo.org/pubs/signle/green_energy.pdf survey
Pennsylvania	Subsector of Energy Industry Cluster	Y	Y	e-mail to green workgroup
Tennessee Governor's Energy Task Force Tennessee Department of Labor and Workforce Development's Employment Security Division	<p>Energy efficiency and conservation, use of alternative fuels and renewable energy sources and the development of clean-energy technology.</p> <ul style="list-style-type: none"> • Energy generation from renewable sources <ul style="list-style-type: none"> ○ Biofuels ○ Wind Energy ○ Solar Energy ○ Geothermal Energy • Energy efficiency <ul style="list-style-type: none"> ○ Green Building <p>Green jobs have been defined as family-supporting jobs that contribute significantly to preserving or enhancing environmental quality. They reside primarily in sectors that compose the clean energy economy – efficiency, renewables, alternative transportation, and fuels.</p> <p>A more complete definition has been developed by the United Nations Environment Program. Green jobs are defined as follows: “...positions in agriculture, manufacturing, R and D, administrative, and service activities aimed at alleviating the myriad environmental threats faced by humanity. Specifically, but not exclusively, this includes jobs that help to protect and restore ecosystems and biodiversity, reduce energy consumption, decarbonizes the economy, and minimize or altogether avoid the generation of all forms of waste and pollution.”</p>	Y	Y	http://www.state.tn.us/ecd/energy/policy.htm http://www.state.tn.us/labor-wfd/Publications/EmploymentSecurity/GrowingGreenInTN2008.pdf
Texas Workforce Commission Marc Anderberg, Director of Applied Research, Labor Market and Career Decision Making Division “Green Collar Workers and Other Mythical Creatures”	<p><i>Disclaimer: All the views and opinions in “GREEN COLLAR WORKERS And Other Mythical Creatures” are solely those of the principle author, Marc Anderberg. They do not constitute the official position of the Texas Workforce Commission or the State of Texas.</i></p> <p>Using an outcomes-based approach, green collar jobs would be arrayed along several dimensions based on quantitative measure (or good faith estimates) of their impact on energy use, emissions and consumption of products distilled from imported oil.</p> <p>An industry-based definition of green collar jobs would include, but be not limited to, those in:</p> <ul style="list-style-type: none"> • Alternative Energy — wind, wave/tide, solar, hydroelectric, geothermal, nuclear, coal gasification/liquefaction, hydrogen and carbon capture & sequestration. • Construction — residential and commercial plus remodeling, inspecting and appraising. • Building Material Manufacturing — e.g., high R-factor insulation, low-e rated glass. • Component Remanufacture — materials rework, parts recycling and refurbishing • Air-Conditioning, Heating & Ventilation and Refrigeration Equipment Manufacturers. • Agriculture — e.g., grain production and biomass horticulture. • Automobile and Transportation Manufacturing (e.g., including: aircraft/airframe manufacturing such as Boeing whose new 787 Dreamliner will have more fuel-efficient jet engines and an airframe made from light weight composites; and Air Craft Engine Manufacturers such as GE which is working with Boeing on the GERnx project to produce jet engines that will work on alternative fuels such as alcohol, bio-butanol and biodiesel mixes.) • Government agencies and NGOs which advocate for, plan, monitor and enforce regulations aimed at conserving energy and/or reducing emissions. 	N	N	http://www.lmci.state.tx.us/share/PDFs/Green_Collar_Workers2.pdf http://www.labormarketinfo.edd.ca.gov/contentpub/GreenDigest/TX-Green-Collar-Workers.pdf

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Washington Employment Security Department/ Department of Ecology	<p>The legislature has directed the Employment Security Department to conduct this survey to determine the number of jobs that directly support environmental protection and clean energy goals. The survey covers firms that produce any goods or provide services that support any of the following four core areas and goals:</p> <ul style="list-style-type: none"> • Increasing energy efficiency • Producing renewable energy • Preventing and reducing environmental pollution • Providing mitigation or clean-up of environmental pollution <p>The green economy is rooted in the development and use of products and services that promote environmental protection, energy independence, and economic development.</p> <p>Environmental protection includes the prevention and reduction of environmental pollution, as well as efforts to mitigate environmental pollution. For example, conservation and recycling.</p> <p>Energy independence includes the development and use of energy efficiency, renewable energy, and smart energy products and services.</p> <p>Green jobs are those in the primary industries of a green economy that promote environmental protection and energy independence.</p> <p>Clean energy is the largest element of the green economy. Clean energy industries include:</p> <ul style="list-style-type: none"> • Energy efficiency - Energy efficiency is by far the largest element of the clean energy sector. The Environmental & Energy Study Institute (EESI) reported gross revenues over \$900 billion and 8 million jobs created in 2006. Their study includes manufacturing, recycling and construction. In Washington the energy efficiency industry employed more than 4,000 people in almost 200 companies. • Renewable energy - Renewable energy includes hydroelectricity, biomass, biofuels, geothermal, wind, and solar. According to the U.S. Energy Information Administration, in 2006 renewable energies produced about six percent of total U.S. energy. The industry grossed revenues of \$40 billion and created nearly half a million jobs. • Smart energy - Smart energy takes advantage of digital technology, electronics and "intelligence" when generating, distributing, and consuming electricity. 	Y	Y	<p>http://www.workforceexplorer.com/admin/uploadedPublications/9463_Green_Jobs_Report_2008_WEXVersion.pdf</p> <p>http://www.ecy.wa.gov/climatechange/GreenEconomy.htm</p>
Energy Independence Act of 2007, Title X – Green Jobs 110 th Congress, H. R. 6 Cosponsored by Labor Secretary Solis	<p><i>Green Jobs – energy efficiency, renewable energy, and the reduction of emissions of greenhouse gases.</i></p> <p>Energy efficiency and renewable energy industries include:</p> <ul style="list-style-type: none"> • the energy-efficient building, construction, and retrofits industries; • the renewable electric power industry; • the energy efficient and advanced drive train vehicle industry; • the biofuels industry; • the deconstruction and materials use industries; • the energy efficiency assessment industry serving the residential, commercial, or industrial sectors; • manufacturers that produce sustainable products using environmentally sustainable processes and materials. <p>“Renewable energy” means electric energy generated from solar, wind, biomass, landfill gas, ocean (including tidal, wave, current, and thermal), geothermal, municipal solid waste, livestock methane, or new hydroelectric generation capacity achieved from increased efficiency or additions of new capacity at an existing hydroelectric project or electricity generated from hydrogen, other than hydrogen produced from a fossil fuel, that is produced from a renewable energy source..(The term ‘renewable energy’ has the meaning given such term in section 203(b)(2) of the Energy Policy Act of 2005 (Public Law 109–58).)</p>	N	N	<p>http://thomas.loc.gov/cgi-bin/query/D?c110:8:./temp/~c110FtKt05::</p>
O*NET Greening of the World of Work Phil Lewis, David Rivkin	<p>Green economy is economic activity related to reducing the use of fossil fuels, decreasing pollution and greenhouse gas emissions, increasing the efficiency of energy usage, recycling materials, and developing and adopting renewable sources of energy.</p>			
The Vice President’s Middle Class Task Force	<p>Used UN Definition and added characteristics of green jobs:</p> <ul style="list-style-type: none"> • Green jobs involve some task associated with improving the environment, including reducing carbon emissions and creating and/or using energy more efficiently; • Green jobs should be good jobs that provide a sustainable family wage, health and retirement benefits, and decent working conditions; • Green jobs should be available to diverse workers from across the spectrum of race, gender, ethnicity. 		Y	<p>http://www.whitehouse.gov/assets/documents/mctf_one_staff_report.pdf</p>

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EPA Clean Energy Workforce Development: Growing Green Jobs to Achieve Climate and Energy Goals	Clean energy (CE) jobs are a subset of green jobs related to: <ul style="list-style-type: none"> • energy efficiency (EE) • renewable energy (RE) • clean combined heat and power (CHP) 	N	N	http://www.epa.gov/cleanenergy/energy-programs/state-and-local/state-forum.html#twoa

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